ATTACHMENT B
Amendments to the Specification

Please replace the paragraphs at page 1, lines 5-13, with the following amended paragraphs.

FIELD OF THE INVENTION

The invention relates to Video-On-Demand (VOD) provided by a server to users provided with a view box via a telecommunication network or a satellite link, possibly through the Internet.

BACKGROUND OF THE INVENTION

Serving various programs by broadcasting them repeatedly, each new broadcast beginning when the preceding has ended does not satisfy users. On the other hand serving the selected video program on a separate channel to each user upon request is expensive and inefficient.

Please replace the paragraph at page 2, lines 20-25, with the following amended paragraph.

SUMMARY OF THE INVENTION

It is an object of the invention to provide an enhanced VOD system and process using a buffer for storing beginning portions of the available programs which spares network or satellite link resources for a given buffer size.

Please replace the paragraphs at page 3, lines 1-7, with the following amended paragraphs.

selecting, in a memory associated with the view box, a previously stored beginning portion of said selected program having a time length corresponding to that of said staggered time intervals and outputting said beginning portion to said view box for display, and

continuously splicing the in-progress transmission stored in the buffer to a conclusion of the beginning portion,

~~characterized in that~~wherein all different video programs in a same set are transmitted with time shifts equal to a fraction of the staggered time interval.

Please replace the paragraph at page 3, lines 23-24, with the following amended paragraph.

- at each of user's ends, ~~a viewbox~~view box unit having a bidirectional connection with said server, each said ~~endbox~~view box unit comprising:

Please replace the paragraphs at page 4, lines 14-25, with the following amended paragraphs.

~~characterized in that~~wherein said server is arranged for transmitting all different video programs in a same set with time shifts equal to a fraction of the staggered time interval.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and additional features will appear from the following description of particular embodiments of the invention, given by way of examples only. The description refers to the accompanying drawings, wherein:

Fig. 1 is a timing diagram for illustrating the main feature of Hybrid Video On Demand;

Fig. 2 is a timing diagram illustrating the requirements for a system with storage in a buffer, when all transmissions begin at the same time;

Fig. 3 is a time diagram illustrating a particular embodiment;

Fig. 4 is a time diagram illustrating another embodiment; and

Fig. 5 is a simplified block diagram of a server – user system according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please replace the paragraph at page 5, lines 5-14, with the following amended paragraph.

Referring now to Fig. 2, an improved version reducing the need for ~~transmision~~transmission resources requires a buffer having an increased capacity for continuously storing the beginning portions of ~~alla~~all video programs. Typically, all N video programs are initiated at the same instant. If there is a requirement that the user be able to start watching any program, including when zapping from a program he or she was watching, the buffer has to store data transmitted for N times the staggered time duration, at least if immediate availability is required even in the

worst case (request just before a new transmission of the selected program begins, as indicated on Fig. 2). Then the buffer size (storable number of Mbytes) C is :

Please replace the paragraph at page 5, lines 28-34, with the following amended paragraph.

The requirements as to the buffer size and / or the required ~~resouces~~resources are significantly reduced by offsetting the starts of transmissions of a same set of programs by a fraction of the time interval. In a preferred arrangement, illustrated on Fig. 3, the starts of the N programs are evenly distributed inside a period equal to the staggered time interval, i.e. at intervals $\mu = \delta /N$. The transmitted portion of each program which is stored in the buffer is as indicated in crossed lines. It could as well be a same sequence of evenly decreasing storage periods starting from another program.

Please replace the paragraph at page 6, lines 5-13, with the following amended paragraph.

Referring to Fig. 3 two successive transmissions of a set of N = 7 programs and part of a third transmission are illustrated. Transmissions of the programs begin at intervals of δ/N. Assuming that the maximum buffer size available for program storage is Co, corresponding to a time duration To, then the minimum staggered time δm ~~acceotable~~acceptable between two transmissions of the same program is $\delta m = To / N$.

Please replace the paragraphs at page 6, lines 22-33, with the following amended paragraphs.

If on the other hand use is made of the approach illustrated in Fig. 3, the ~~the~~ worst case again occurs when there is a request for a video program ~~is~~ just before the beginning of a transmission of that program, as indicated at time t2 when program 2 is selected. Then the transmitted portion which does not ~~nedd~~need to be permanently stored in the buffer ~~corrsponds~~corresponds to the blank spaces. The time periods which must be stored are then as follows :

Video program 1 : μ

Video program 2 : $N\mu = \delta m$

Video program 3 : 2μ

.....

Video program N: ~~(N – 1) / N] x μ~~(N-1).μ

The total duration ~~To~~ to be stored is then:

Please replace the paragraphs at page 7, lines 1 and 2, with the following amended paragraphs.

To = μ + 2μ + 3μ + 4μ + ... + ~~[(N-1)/N]μ~~(N-1).μ+ Nμ = N. (N+1). μ /2, whatever the program which is selected.

Please replace the paragraphs at page 7, lines 18-22, with the following amended paragraphs.

Another embodiment (Fig. 4) offers the possibility ~~for starting~~to start watching any of the N video program at any time, including during ~~watching~~the time a given program was watched; in that case the communications network or satellite link is optimized for saving a percentage of $(N^2-3N+2)/(2N^2)$) of the network resource with respect to the case where no time shift is applied between the transmission starting times of the different video programs. In that case additional storing duration δ for the watched program during watching of the program has to be provided.

Please replace the paragraphs at page 7, lines 29 and 30, with the following amended paragraphs.

As illustrated on Fig. ~~1~~4 just before the beginning portion of video program 3 stops (worst case), the periods for which transmission has ~~have~~ to be stored are: